



**COMPUTER SCIENCE
STANDARD LEVEL
PAPER 1**

Monday 12 November 2007 (afternoon)

1 hour 30 minutes

INSTRUCTIONS TO CANDIDATES

- Do not open this examination paper until instructed to do so.
- Section A: answer all the questions.
- Section B: answer all the questions.

SECTION A

Answer *all* the questions.

1. An organization has to determine the level of security required to prevent theft of valuable data. State **two** factors that should be considered in this determination. [2 marks]
2. Outline the application of CASE tools. [2 marks]
3. (a) Outline the principal characteristics of *online (interactive) processing*. [2 marks]
(b) State **two** applications of online (interactive) processing. [2 marks]
4. Outline what is meant by *syntax errors*. [2 marks]
5. Outline **two** features of a *feasibility report*. [4 marks]
6. (a) Explain the function of *cache memory*. [3 marks]
(b) Outline the need for *virtual memory*. [3 marks]
7. State **one** advantage and **one** disadvantage of *direct access*. [2 marks]
8. Discuss the advantages of *modularity* in designing a solution to problems. [4 marks]
9. Outline the function of an *interpreter*. [2 marks]
10. Outline the need for *data compression*. [2 marks]

SECTION B

Answer **all** the questions.

- 11.** A business with around 60 employees is planning to introduce a Local Area Network (LAN).
- (a) Describe both the hardware and the software needed for this organization to connect to the Internet and make use of e-mail facilities. *[4 marks]*
 - (b) State **two** advantages of the LAN to users. *[2 marks]*
 - (c) The business is considering introducing either a *star* or a *bus* network. Outline **one** advantage and **one** disadvantage of choosing the star. *[4 marks]*

12. A banking organization is considering setting up a network system.
- (a) Explain **two** security measures that should be adopted to prevent unauthorized access. *[4 marks]*
 - (b) State **two** methods to ensure data integrity in the transmission of data. *[2 marks]*
 - (c) Discuss **two** implications of a failure of network security. *[4 marks]*

- 13.** A hotel reservation system is being developed using the *prototyping approach*.
- (a) (i) Compare *questionnaires* and *observation* as methods of *data collection*. [5 marks]
- (ii) State **one** other method of data collection. [1 mark]
- (b) Explain **two** advantages of prototyping. [4 marks]

14. Consider the following Java method:

```
private int daysInMonth (int month)
{
    if((month == 4) || (month == 6) || (month == 9) || (month == 11))
    {
        return 30;
    }
    else if (month == 2)
    {
        return 28;
    }
    else
    {
        return 31;
    }
}
```

- (a) Explain the significance of the word *private* in the method heading. [2 marks]

- (b) Describe the result of the following method call:
`int days = daysInMonth(7);` [3 marks]

- (c) Describe a situation in which a *logic error* could occur as a result of calling this method. [3 marks]

The method `daysInMonth()`, which calculates the number of days in a given month, can be called from other methods.

- (d) Suggest the purpose of one such method. [2 marks]